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Debate**

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SUPERANNUATION FUNDS: THE FEES AND PERFORMANCE DEBATE

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1. INTRODUCTION

Those who have followed the debate between Drew and Noland (2000)² and Hayes (2001) in this journal will understand that the controversy surrounding one of the most hotly contested ideas in financial economics – market efficiency and fund manager skill – is truly alive and well. Drew and Noland (2000) and Hayes (2001) are both in agreement that idea of a market which is efficient in an informational sense represents more than a clash of theory with practice, it is a debate which strikes at the heart of how Australia's AUD 500 billion pool of retirement savings should be managed³.

Hayes (2001) is partial to the view that the “Australian equity market is not perfectly efficient” and that “active investment managers have been effectively exploiting these inefficiencies over the past 20 years.” The essence of Hayes' (2001) argument seems to be that contribution of Drew and Noland (2000) is limited as it employed a methodology that considered *post* MER returns. Hayes (2001) suggests that that the received practice for evaluation is “based on *raw* data before fees and expenses” and that “MERs are management and administrative charges which have no relevance to the manager's ability to outperform the index.”

This reply offers an alternate view to Hayes' (2001) claim of irrelevance of the MER in assessing manager performance. Specifically, we provide evidence in this paper of the impact of fees on the performance of *both* retail and wholesale funds managing domestic equities on behalf of superannuation investors. Two decades after the publication of Bird, Chin, and McCrae's pioneering work “Superannuation fund managers – how do they rate?” in the JASSA of 1982, we are still debating the skill (or otherwise) of fund managers and its implications for efficient capital markets.

The major point of contention between the positions of Drew and Noland (2000) and Hayes (2001) relates to the role of the MER in manager evaluation. As financial economists we interpret the MER as having two important functions. First, the MER is a signal of quality, specifically, the quality of asset selection decisions made by managers in the creation of alpha. Highly skilled managers with asset selection skills will charge

¹ I take this opportunity to thank Dr Jon D. Stanford FSIA for helpful comments.

² The paper “EMH is alive and well” by Michael E. Drew and James E. Noland received a merit award for the 2000. JASSA Prize.

³ JASSA has had a long history of active debate in the field of market efficiency and the performance of superannuation managers – see Bird, Chin and McCrae (1982).

higher MERs as compensation for their ability to economic rents (in this case, consistently generate positive alpha). Second, the MER provides an indication of the cost of becoming informed – the rational fund manager will only collect information up until the point where the marginal benefit of becoming informed is in equilibrium with the marginal cost of such activities.

2. RETAIL FUNDS

We concur with the position of Hayes (2001) on the importance of segmenting funds into retail and wholesale statements when evaluating performance. As a starting point, we consider the retail market. Morningstar Research Pty Ltd (Morningstar), an independent measurement service in Australia, provided monthly return observations (net of management fees, excluding entry and exit loads) for every retail superannuation fund classified as ‘Retail superannuation fund Australian equity – general’, from January 1991 through December 1999. The sample of 148 funds is complete in the sense that it contains all of the funds with no missing data and was maintained by the same independent data collection agency throughout the period⁴. The average retail fund investigated in the study charged investors a management fee of 1.8 per cent per annum (with a range 1.5 to 2.5 per cent per annum). It is also important to note that the estimates provided throughout the paper ignore the impact of entry and exit loads, as this study is concerned with specifically with the skill of active managers. The average entry load for the sample was 3.7 per cent, with an average exit fee of 2.0 per cent.

Campbell (1996) argues that one of the important problems of modern financial economics is the quantification of the trade-off between risk and return. Although it is generally held that risky investments will generally yield a higher return than investments free of risk, it was only with the development of the capital asset pricing model (CAPM) that researchers were able to quantify risk and the reward for its adoption. The defining feature of the CAPM is that expected returns of an asset must be linearly related to the

⁴ The sample contains 3 distinct cohorts exist within the retail classification: open-end, closed-end and non-surviving. The retail open-end cohort consists of superannuation funds that are structured to accept investments from individuals. These funds are pooled and invested by a fund manager in a portfolio of general Australian equities. A typical retail fund requires a minimum initial investment of AUD 2,000, with minimum monthly contributions of AUD 100. Retail open-end funds allow investors to buy and sell at a unit price based on the appraised value of total assets. Investors can leave and enter at any time and assets may be continually added to the fund. A total of 68 retail open-end funds are investigated in this study. Closed end retail funds no longer accept new investors or new investments from existing unitholders. These are usually difficult funds for investors to exit owing to a lack of liquidity in the fund's underlying investments. However, due to the fund being closed-end in nature, it permits the investment manager to be largely unaffected by the impact of large capital inflows from superannuation investors. This provides the manager with a degree of certainty regarding the assets under management. Despite the issues relating to exiting such funds, retail superannuation investors are large users of these closed-end products. A total of 67 retail closed-end funds are examined in this study. The retail non-surviving cohort is comprised of retail funds that were finalised (merged or terminated) during the sample period. The decision to finalise a fund is typically made by the trustee on commercial grounds (such as the pool of assets under management is no longer large enough to warrant the continuation of the fund). The inclusion of the non-surviving cohort largely mitigates the methodological flaw of survivorship bias for the study (Malkiel 1995, Drew and Stanford 2001). A total of 13 retail funds were terminated over the sample period.

covariance of its return with the return of the market portfolio⁵.

However, recent research has found that the single-factor CAPM is limited in its ability to capture the cross-sectional variation of stock returns (Fama and French 1992, Malkiel and Xu 1997, Drew and Veeraraghavan 2001) resulting in the development of multifactor asset pricing models. This study (as with all evaluation studies) is then faced with the controversial issue of selecting the factors to be included in the model that explain the cross section of expected returns in equity markets. Gruber (1996) suggests that researchers can resolve this problem through selecting factors for manager evaluation that span the major types of securities held by the fund.

The philosophical stance adopted by this study was to select benchmarks that reflected the universe of securities from which managers can select to build a domestic stock portfolio. To be classified by Morningstar as a 'Retail superannuation fund Australian equity – general' the fund must hold a minimum of 80 per cent of portfolio assets in general Australian equities, with a maximum of 20 per cent of portfolio assets in domestic fixed interest securities. The typical mandate of the funds investigated in this study restricts the majority of investment to large capitalisation stocks comprising the Australian Stock Exchange (ASX) Top 100 index.

Following the parameters set by the typical trust deed of superannuation funds, the ASX Top 100 accumulation index is used as the key proxy for the market portfolio, with the ASX Top 20 accumulation index used as a confirmatory market proxy. Moreover, if managers are attempting to undertake strategic behaviour through investing in small capitalisation equities, implementing a value stock selection style and actively switching between stock and bonds these effects are captured by the multifactor model. Given that this study examines funds with a mandate to out-perform a broad stock accumulation index (as with Gruber 1996), a multifactor model is developed for the Australian setting. Specifically, the four-factor model employed in this study examines market, size, style and bond factors (Gruber 1996).

$$[1] \quad R_{it} - R_{ft} = \mathbf{a}_i + \mathbf{b}_{mt}(R_{mt} - R_{ft}) + \mathbf{b}_{st}(R_{st} - R_{ft}) + \mathbf{b}_{gt}(R_{gt} - R_{vt}) + \mathbf{b}_{dt}(R_{dt} - R_{ft}) + \mathbf{e}_i$$

where:

- \mathbf{a}_i = risk-adjusted excess return measured from the four-factor model;
- R_{it} = return on fund i in month t ;
- R_{ft} = yield on the Reserve Bank of Australia 13-week Treasury Note in month t ;
- R_{mt} = return on the Australian Stock Exchange Top 100 accumulation index in month t (market factor or single-factor CAPM);

⁵ On a similar sample of funds and time period used in this study, Drew and Noland (2000) report an average monthly industry Sharpe measure of -0.008 (market 0.038), Treynor -0.623 (market 0.147), Jensen's alpha -0.1616 (market 0.00) and M^2 measure 1.14 (1.288). Using each of these single-index measures, approximately 75 per cent of the funds delivered performance which was below the risk-adjusted market return, with the remaining 25 per cent of funds achieving superior returns per unit of risk. These results are consistent with the US experience reported by Malkiel and Radisich (2001). For further discussion of these single-index measures in the Australian superannuation context see Drew and Noland (2000).

- $R_{st} - R_{lt}$ = difference in return between a small capitalisation portfolio and a large capitalisation portfolio based on Australian Stock Exchange-Frank Russell Company indices in month t (size factor⁶);
 $R_{gt} - R_{vt}$ = difference in return between a growth portfolio and a value portfolio based on Australian Stock Exchange-Frank Russell Company indices in month t (style factor);
 $R_{dt} - R_{ft}$ = difference in return on a bond index that represents Commonwealth, semi-government and corporate bonds across all maturities, based on the Warburg Dillon Reed Composite Bond (All Maturities) accumulation index in month t (domestic fixed interest factor); and,
 b_{ki} = sensitivity of difference in return on fund i to portfolio k , where k can represent the market, size, style or domestic fixed interest factor.

Following Gruber (1996), it is important to note that the indices in Equation [1] are constructed as zero investment portfolios. This implies that the intercept (α) of a time series regression of a random portfolio against the indices should be zero.

Table 1: Risk-adjusted retail fund return estimates

R_{mt} = ASX Top 100 accumulation index	
Cohort	a
Retail open-end	-0.0282 (0.14)
Retail closed-end	-0.0671 (-0.66)
Retail non-surviving	-0.2541 (-0.85)
<i>All retail funds</i>	<i>-0.0416</i> <i>(-0.44)</i>
Basis points (p.a.)	-50
R_{mt} = ASX Top 20 accumulation index	
Retail open-end	-0.0249 (-0.11)
Retail closed-end	-0.1034 (-0.74)
Retail non-surviving	-0.2273 (-0.69)
<i>All retail funds</i>	<i>-0.0777</i> <i>(-0.46)</i>
Basis points (p.a.)	-93

Source: Drew and Stanford (2003).

⁶ The size and growth portfolios were constructed from Australian Stock Exchange-Frank Russell Company indices as follows: (a) the small capitalisation portfolio is the average of the return on the Russell Small Value and Russell Small Growth indices; (b) similarly, the large capitalisation portfolio is the average return on the Russell Value 100 and Russell Growth 100 indices; (c) the growth portfolio is the average of the Russell Small Growth and Russell Growth 100 indices; and, (d) the value portfolio is the average of the return on the Russell Small Value and Russell Value 100 indices. A value firm is denoted by a high book equity (BE) to market equity (ME) ratio, with growth firms characterised by a low BE/ME ratio. Small capitalisation firms have a low product of current share price and number of ordinary shares on issue. Australian Stock Exchange indices are value-weighted, and are therefore dominated by large capitalisation firms.

Alpha (α) is estimated from the cross-sectional time series regression of the excess fund returns on the excess market return and the mimicking returns for the size ($R_{st} - R_{lt}$), style ($R_{gt} - R_{vt}$) and bond ($R_{dt} - R_{ft}$) factors: $R_{it} - R_{ft} = \alpha_i + \mathbf{b}_{mt}(R_{mt} - R_{ft}) + \mathbf{b}_{st}(R_{st} - R_{lt}) + \mathbf{b}_{gi}(R_{gt} - R_{vt}) + \mathbf{b}_{di}(R_{dt} - R_{ft}) + \mathbf{e}_i$. The excess market return, $R_{mt} - R_{ft}$, is the difference between the return on the Australian Stock Exchange (ASX) Top 100 Accumulation Index (with the ASX Top 20 Accumulation index used as a confirmatory proxy) and the return on the Reserve Bank of Australia 13-Week Treasury Note in month t . The size factor is the return on the mimicking portfolio for the common size anomaly in stock returns. The style factor is the return on the mimicking portfolio for the common book-to-market equity anomaly in stock returns. Finally, the bond factor is the return on the mimicking portfolio of domestic fixed interest securities to limit the defects of asset coverage. The market, size, style and bond factors are constructed following the descriptions of Gruber (1996). \mathbf{b}_k is the factor loading on the corresponding independent variable. All t -statistics are provided in the brackets. Performance measures are in percentage return per month on an equal-weight basis.

Estimates from the multifactor model illustrate that the average fund in the sample had an estimated β_m of less than one (the average β was in the range of 0.62 to 0.85 with the market portfolio having a β of 1). The multifactor model does a sound job of capturing the cross-section of manager performance, explaining some 84 per cent of the variability of returns.

The multifactor model estimates suggest that managers under-perform the market by a range of -50 to -93 basis points per annum. Moreover, the evidence presented on the other three explanatory variables (size, style and domestic fixed interest securities) illuminates some important issues for superannuation investors.

First, an examination of the regression coefficients in Table 1 suggests that the funds investigated during the sample period held equities that were smaller than the combination of equities in the ASX Top 100 and Top 20 accumulation index. This suggests that managers are being strategic in their behaviour, investing in small-capitalisation stocks outside popular benchmarks. The existence of a size factor in the sample provides further evidence of the strength of the multifactor model.

Second, a statistically significant explanatory variable was the excess return on a portfolio of domestic fixed interest securities above the risk-free rate. This finding highlights that investors engaging specialist domestic stock managers are, typically, investing in a portfolio that has a significant proportion (up to 20 per cent) of return contributed by lower volatile, fixed interest securities. This relatively high proportion of domestic fixed interest exposure must be incorporated into the superannuation investor's approach to the asset allocation problem.

Finally, dissimilar to the recent international evidence of Gruber (1996) the managers investigated in this study are not characterised by a particular stock selection style. This is confirmed by the independent variable 'style' not being statistically different from zero at the 5 per cent level. This issue warrants further investigation. Specifically, the way in

which managers actually select stocks requires a more detailed analysis to provide a statistically significant explanatory variable for the Australian experience. A direction for future research may take the form of qualitative techniques (such as fund manager surveys) to shed light on this important issue. This would also assist trustees in selecting or blending different managers to mitigate risk for fund members.

3. WHOLESALE FUNDS

We now turn our attention to the performance of the wholesale fund segment. Again, Morningstar provided monthly return observations (net of management fees, excluding entry and exit loads) for every wholesale superannuation fund classified as ‘Wholesale Pooled Superannuation Trust Australian Equity – General’, from January 1991 through April 1999. A total of 30 funds are examined in this study⁷. The annual average management fee of the sample is 0.74 per cent per annum. A further defining feature of the sample of wholesale funds is that no entry or exit loads are levied by any of the managers.

Table 2: Risk-adjusted wholesale fund return estimates

<i>R_{mt}</i> = ASX Top 100 Accumulation Index	
Cohort	<i>a</i>
Wholesale Open-end	0.0051 (0.02)
Wholesale Closed-end	0.0013 (0.01)
Wholesale Finalised	-0.0005 (0.01)
<i>All wholesale funds</i>	<i>0.0045</i> <i>(0.02)</i>
Basis points (p.a.)	+5
<i>R_{mt}</i> = ASX Top 20 Accumulation Index	
Wholesale Open-end	0.0041 (0.02)
Wholesale Closed-end	-0.0007 (0.01)
Wholesale Finalised	0.0011 (0.02)
<i>All wholesale funds</i>	<i>0.0036</i> <i>(0.04)</i>
Basis points (p.a.)	+4

Source: Drew, Stanford and Veeraraghavan (2002).

⁷ The wholesale open-end cohort consists of superannuation funds that are structured to accept investments from trustees. The funds investigated in this study typically require a minimum investment of AUD 250,000, with minimum monthly contributions of AUD 20,000. These funds are pooled and invested by a fund manager in a portfolio of general Australian equities. Wholesale funds permit superannuation trustees to buy and sell at a unit price based on the appraised value of total assets. Investors can leave and enter at any time and assets may be continually added to the fund. A total of 26 open-end funds are investigated in this study. Closed end retail funds no longer accept new investors or new investments from existing unitholders. These are usually difficult funds for investors to exit owing to a lack of liquidity in the fund's underlying investments. However, due to the fund being closed-end in nature, this allows the fund manager to be largely unaffected by the impact of large capital inflows and outflows from superannuation trustees. This provides the investment manager with a degree of certainty regarding the assets under management. The liquidity issues relating to exiting such funds have resulted in superannuation trustees being minimal users of these closed-end products. A total of 2 wholesale closed-end funds are examined in this study. The wholesale non-surviving cohort is comprised of funds that were terminated during the sample period. The decision to finalise a fund is typically made by the investment manager. The Australian wholesale market is characterised by a low mortality rate, with only 2 funds being terminated over the sample period.

The results presented in Table 2 are consistent with the Grossman and Stiglitz (1980) notion that if investment managers are essentially informed investors, then their returns, adjusted for risk and expenses will be comparable to the returns achieved in an index fund due costly information. With similar results, Ippolito (1989) deduces that the evidence is consistent with the notion that that expenses and charges affiliated with investment management are offset by superior results, a condition which characterises efficient markets in the presence of costly information. Following the critique of Elton *et al.*, (1993), this study has addressed the major methodological flaws in previous studies, specifically relating to survivorship bias and the use of a multifactor conception of the CAPM.

The empirical analysis undertaken in Table 2 provides partial answers to the question of whether investment managers generate sufficient returns to offset expenses. There evidence over the observation period that, net of management fees, investment managers performed comparably to a passive asset selection strategy on a risk-adjusted basis. A further issue that requires analysis relates to the role of fees. An important issue to consider is whether a direct or positive relationship exists between the management fee charged by wholesale managers and the resultant performance. Specifically, the question asked of the sample is whether funds that charge higher management fees earn sufficiently higher rates of return to cover such costs.

4. MANAGEMENT FEES AND WHOLESALE FUNDS

The ongoing management fees of the wholesale funds investigated in this study are charged based on the value of fund units. Typically, the management fee is accrued daily and is payable quarterly in arrears (or upon the full withdrawal of the fund) by the redemption of units. To test for a relationship between the management fee and fund returns, Table III sorts fund alphas into management expense ratio (MER) bands on an equal- and conditional-weighted basis.

Table 3: Management fees and wholesale fund return estimates

The monthly fund alphas are sorted into annual management fee bands and reported on a equal and conditional weighted basis. In a typical fund, ongoing management fees are charged on a sliding scale based on the value of units. Fees are accrued daily and are payable quarterly in arrears (or upon full withdrawal from the fund) by the redemption of units. All costs incurred in managing the assets of the fund are charged to the fund and are taken into account when calculating unit values. These costs include stamp duty and other statutory charges, brokerage, commission, taxes, costs associated with valuations and costs on the acquisition and disposal of assets, fees associated with the management and maintenance of assets and custodial fees.

Management Expense Ratio	EW Mean return	CW Mean return
MER < 0.6%	0.4957	0.2614
0.6% > MER < 0.7%	0.3645	0.2187
0.7% > MER < 0.8%	-0.0619	-0.0467
0.8% > MER < 0.9%	0.1283	0.1182
0.9% > MER	0.1155	0.1032

Source: Drew, Stanford and Veeraraghavan (2002).

Table 3 provides evidence that suggests an inverse relationship exists between management fees and investment manager returns. Excluding the most populated band, 0.7% > MER < 0.8%, as it includes all the funds from the finalised cohort, estimated investment manager returns *decline* with higher expenses. This finding is inconsistent with the earlier hypothesis of a positive relationship between manager returns and fees. Moreover, this finding aligns much more closely with the market efficiency notion that costs associated with research and trading are sunk. In short, the MER as a quality signal for wholesale funds is in question.

The evidence presented in the analysis section raises a number of important normative issues for the trustees of superannuation funds. First, contrary to recent empirical studies, evidence is presented that the arbitrage function may be incomplete, with the wholesale management industry just covering expenses through active asset selection. This provides some support for trustees to engage wholesale managers with an active stock selection mandate on behalf of superannuation fund members, with the caveat of the MER charged being all important.

Second, again contrary to recent studies, the Australian ‘Wholesale Pooled Superannuation Trust Australian Equity – General’ fund segment has a remarkably low attrition rate. Low fund mortality minimises the risk that trustees will formulate overly optimistic future return expectations. A question that needs to be addressed in future research is why the mortality rate in the wholesale segment is so low. One possible answer to this question is that, given the nature of Australian’s superannuation arrangements, wholesale investment managers face a highly inelastic demand curve for their services.

Finally, on the issue of manager remuneration, trustees must be cognisant of the inverse relationship between management fees and returns presented in this paper. This study finds that active investment managers that have higher expense ratios, higher fees and higher turnover do not earn sufficiently higher rates of return to pay for these additional costs. The evidence presented in Table III raises a number of interesting (and potentially profitable) issues for future research relating to the quantification of an equilibrium point between the marginal cost and marginal benefit of active asset selection. The identification of such a point would assist trustees in striking a remuneration level for investment managers that maximises the efficiency in which retirement savings are converted into retirement incomes.

5. CONCLUDING COMMENTS

The work of Hayes (2001) is important in that it highlights a number of topical issues for Australia's burgeoning funds management industry. First, we are broadly in agreement with Hayes' (2001) view that the "Australian equity market is not perfectly efficient." The study by Drew and Noland (2000) makes no claim that markets are "unequivocally efficient." Drew and Noland (2000) state that the market is "remarkably efficient" as, a priori, we would expect that around half the sample of managers would outperform on a post-fee basis. The evaluation of both retail and wholesale funds suggests that the alpha accretive decisions made by managers are passed on to investors when an MER of around 0.6 to 0.7% p.a. is applied, with the imposition of MERs of, say, 2.0% p.a. for retail investors appearing, as an industry, insurmountable.

Hayes (2001) finds amusement in the "ongoing debate of active versus passive" management, noting that "no-one ever wins but everyone has strong convictions." This paper is not about convictions. It is about empirical evidence. The evidence suggests that management expense ratios lie at the heart of fund manager evaluation and must be a central criteria for investors when making fund selections.

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